Padasalai's Telegram Groups!

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XII BOTONY

ASEXUAL AND SEXUAL REPRODUCTION IN PLANTS

1. Identify the wrongly matched pair.
   a. Polyembryony - E.Strasburger
   b. Double fertilization - S.Nawaschin and L.Guignard
   c. Pollen tube - D.A. Johansen
   d. Embryo culture - E.Hanning

2. Which of the following is a modern method of plant breeding?
   a. Meristem culture b. Layering
   c. Bud grafting d. Budding

3. The presence of large nucellus is characteristic of
   a. Orthotropous ovule b. Crassinucellate ovule
   c. Tenuinucellate ovule d. Anatropous ovule

4. Which of the following does not bear cleistogamous flower?
   a. Commelina b. Viola
   c. Oxalis d. Clerodendron

5. Match the following:
   I. Cantharophily - i. Bees
   II. Malacophily - ii. Snails
   III. Mellitophily - iii. Moths
   IV. Phalaenaphily - iv. Beetles

   a. I-iv, II-iii, III-i, IV-ii
   b .I-iv, II-ii, III-i, IV-iii
   c. I-iii, II-i, III-iv, IV-ii
   d. I-iii, II-ii, III-i, IV-iv

6. Piston mechanism for pollination is found in the family

a. Papilionaceae b. Poaceae

c. Asclepiadaceae d. Aristolochiaecae

7. Epihydrophily pollination is found in

a. Vallisneria b. Salvia

c. Ceratophyllum d. Zastera

8. An example for tetrasporic embryo sac is

a. Allium b. Polygonum

c. Peperomia d. Oenothera

9. Herkogamy is found in

a. Gloriosa b. Commelina

c. Viola d. Scrophularia

10. Funiculus develops into aril in

a. Ricinus b. Physalis

c. Anacardium d. Pithecellobium

XII BOTONY

CLASSICAL GENETICS

1. Mendel selected _____ plant for his experiments.

a. Sweet pea b. Sweet potato

c. Wild pea d. Garden pea

2. Which of the following is the basis of heredity?

a. Cistron b. DNA

c. Chromosome d. Gene (factors)

3. Mendel was successful in his experiments because

a. attention was focused in one character at a time

b. he maintained accurate records of result obtained

c. he carefully observed the experiments

d. All the above

4. Red (RR) Mirabilis jalapa is crossed with white one (ww). Offspring Rw are pink. This is a case of

a. dominant recessive b. hybrid

c. incomplete dominance d. Supplementary genes

5. _____ occurs when heterozygous express both homozygous phenotypes equally.

a. Dominance b. Incomplete dominance

c. Codominance d. Multiple allele

6. Mendel formulated the Laws of purity of gametes on the basis of

a. dibhyrid cross b. test cross

c. monohybrid cross d. back cross

7. A test cross is carried out to

a. determine the genotype of a plant at F_2

b. Predict whether two traits are linked

c. assess the number of alleles of a gene

d. determine whether two species or varieties will breed successfully

8. An organism with two identical alleles is

a. dominant b. hybrid

c. heterozygous d. homozygous

9. The pioneer of modern genetics is

a. Mendel b. Morgan

c. de Vries d. Punnet

10. The term “Genetics” was coined by

a. Morgan b. William Bateson

c. Johannsen d. Carl Correns

11. A gene that masks the other gene’s expression is called

a. dominant b. recessive

c. epistasis d. assorted

12. The genes controlling the seven pea characters studied by Mendel are now known to be located on how many different chromosomes?

a. seven b. six

c. five d. four

13. Match the following columns:

Column I	Column II
I. Test cross	i. 9 : 3 : 3 : 1
II. Monohybrid cross	ii. Tt x tt
III. Back cross	iii. Tt x TT
IV. Dihybrid cross	iv. 3 :1

	I	II	III	IV
a.	ii	iv	iii	i
b.	ii	iv	i	iii
c.	iii	iv	i	ii
d.	i	iv	ii	iii

14. When a single gene influences more than one trait it is called

a. Pseudodominance b. Pleiotrophy

c. epistasis d. none of these

XII BOTONY

CHROMOSOMAL BASIS OF INHERITANCE

1. Coupling and Repulsion phenomenon is concerned with

a. Crossing over b. Mutation

c. Genetic map d. Linkage

2. Polyploidy leads to rapid formation of new species because of

a. Chromosome behaviour b. Genetic recombination

c. Development of multiple sets of chromosomes

d. Mutation therapy

3. A point mutation comprising the substitution of a purine by pyrimidine is called

a. Transition b. Translocation

c. Deletion d. Transversion

4. Which of the following mutation occurs between non homologous chromosomes?

a. Deletion b. Duplication

c. Inversion d. Reciprocal translocation

5. The distance between two genes in a chromosome is measured in cross-over units which represent

a. Ratio of crossing over between them

b. Percentage of crossing over between them

c. Number of crossing over between them

d. None of these

6. Which of the following is not ionizing radiations?

a. Gamma rays b. UV rays

d. X rays d. Alpha rays

7. A point mutation that changes a codon of an amino acid into a stop codon is called

a. Frameshift mutation b. Missense mutation

c. Non sense mutation d. Indel mutation

8. Euploidy is a form of allopolyploidy

a. True b. False

9. In male Drosophila there is complete linkage only because

a. the genes are very closely located b. coupling theory

c. no synapsis d. repulsion theory

10. Accurate mapping of genes can be done by using

a. two-point test cross b. three-point test cross

c. three strands crossing over d. two strands crossing over

XII BOTONY

PRINCIPLES AND PROCESSES OF BIOTECHNOLOGY

1. The term ‘ Biotechnology ‘ was given by

a. Craig Venter b. Robert Edward

c. Karl Ereky d. EWilcox and Kelley

2. Restriction enzymes used in recombinant DNA technology are obtained from

a. Bacterial cells b. plasmids

c. bacteriophages d. All eukaryotes

3. Which of the following is cloing vectors?

a. DNA of Salmonella typhimurium

b. Ti plasmids

c. Any DNA containing antibiotic resistance genes.

d. Bacteriophage

4. Which of the following is known as molecular scissors of DNA?

a. Ligase b. Polymerases

c. Restriction endonucleases d. Transcriptase

5. One important achievement of genetic engineering has been the production of

a. Interferon b. Human insulin

c. Cephalosporin d. Vinoblastine

6. Recombinant DNA contain fragments of

a. Antibiotic resistance gene b. Disease resistance gene

c. Antibiotic accepting gene d. All of them

7. Which of the following is used in genetic engineering?

a. Restriction endonuclease b. Mycobacterium

c. Entamoeba d. Pepsin

8. Identify the palindrome sequence in the following.

a. 3’ AACCGG 5’

5’ TTGGCC 3’

b. 3’ GGTTGG 5’

5’ CCAACC 3’

c. 3’ AAGGCT 5’

5’ TTCCGA 3’

d. 3’ CTGCAG 5’

5’ GACGTC 3’

9. In gel electrophoresis, the separated DNA fragments are visualised after staining the DNA with A followed by exposure to B. Here A and B refers to

	A	B
a.	β– galactosidase	Infrared radiation
b.	Ethidium bromide	UV radiation
c.	Ethidium nitrate	γ – radiation
d.	Ethidium chloride	Radiowave

10. Which among the following is the vector mediated gene transfer?

a. Chemical mediated gene transfer b. microinjection

c. electroporation methods of gene transfer d. T_1 plasmid

XII BOTONY

PRINCIPLES OF ECOLOGY

1. In which of the following interaction both partners are adversely affected?

   a. Parasitism b. mutualism

   c. competition d. predation

2. Besides paddy fields, cyanobacteria are also found inside vegetative part of

   a. Equisetum b. psilotum

   c. pinus d. cycas

3. Which one of the following is most appropriately defined?

   a. Host is an organism which provides food to another organism.

   b. Amensalism is a relationship in which one species is benefitted whereas the other is unaffected.

   c. Predator is an organism that catches and kills other organism for food.

   d. Parasite is an organism which always lives inside the body of other organism and may kill it.

4. Reduction in vascular tissue, mechanical tissue and cuticle is characteristic of

   a. mesophytes b. epiphytes

   c. hydrophytes d. xerophytes

5. More than 70% of world's freshwater is contained in

   a. polar ice b. glaciers and mountains

   c. Antarctica d. Greenland

6. Which type of association is found in between entomophillous flower and pollinating agent?

a. mutualism b. commensalism

c. cooperation d. co-evolution

7. Association of plants when both partners are benefitted

a. colony b. mutualism

c. commensalism d. amensalism

8. Deep black soil is productive due to high proportion of

a. sand and zinc b. gravel and calcium

c. clay and humus d. silt and earthworm

9. Transition zone between the two vegetative regions is named as

a. ecotone b. ecoline

c. ecosystem d. ecotype

10. A community is defined as

a. interacting population b. a group of birds

c. an interactive ecosystem d. a collection of species

11. Humus is present in

a. Horizon - A

b. Horizon – O

c. Horizon – B

d. Horizon - C

XII BOTONY

ECOSYSTEM

1. Vertical distribution of different species occupying different levels in a biotic community is known as

   a. zonation b. pyramid

   c. divergence d. stratification

2. Which of the following is a primary consumer in maize field ecosystem?

   a. Grasshopper b. Wolf

   c. Phytoplankton d. Lion

3. Identify the possible link 'A" in the following food chain.

   Plant → Insect → Frog → 'A' → Eagle

   a. Rabbit b. Wolf

   c. Snake d. Parrot

4. Which one of the following types of organisms occupy more than one trophic level in a pond ecosystem?

   a. Fish b. Zooplankton

   c. Frog d. Phytoplankton

5. Energy transfer from one trophic level to other, in a food chain is

   a. 10% b. 20%

   c. 1% d. 2%

6. In a terrestrial ecosystem such as forest, maximum energy is in which trophic level?

   A, T_3 b. T_4

   c. T_1 d. T_2

7. Which of the following ecosystem has the highest gross primary productivity?

a. Mangroves b. Rainforest

c. Grassland d. Coral reef

8. Which of the following acts as 'nature's scavengers'?

a. Insects b. Microorganisms

c. Man d. Animals

9. The dominant second trophic level, in a lake ecosystem, is

a. Phytoplankton b. Zooplankton

c. benthos d. plankton

10. Pyramid of numbers deals with the number of

a. species in an area b. individuals in a community

c. individuals in a trophic-level d. subspecies in a community

11. Pick up the correct food chain.

a. Grass → Chameleon → Insects → Bird

b. Grass → Frog → Rabbit → Bird

c. Phytoplankton→ Zooplankton → Fish

d. Fallen leaves → Bacteria → Insect larvae

12. Upper part of sea / aquatic ecosystem contains

a. plankton b. nekton

c. plankton and nekton d. benthos

13 . In an ecosystem, which one shows one-way passage?

a. Force energy

b. Carbon

c. Nitrogen

d. Pottassium

XII BOTONY

ENVIRONMENTAL ISSUES

1. One green house gas contributes 20% to total global warming and another contributes 14%. These are respectively identified as

   a. CFCs and N_20 b. CH_4 and CFCs

   c. CH_4 and CO_2 d. CFCs and CO_2

2. Global agreement in specific control strategies to reduce the release of ozone depleting substances was adopted by

   a. The Vienna convention b. Rio de Janeiro conference

   c. The Montreal Protocol d. The Kyoto protocol

3. Under Column I of gases that are known to have green house effect is given. Relate them to their main source by selecting from given under Column II.

Column I	Column II
I. Nitrous oxide (N_20)	i. Secondary pollutant from car exhausts
II. Chlorofluoro carbons (CFCs)	ii. Combustion of fossil fuels, wood, etc.
III. Methane (CH_4)	iii. Denitrification
IV. Ozone (O_3)	iv. Refrigeration, aerosol and sprays
V. Carbondioxide (CO_2)	v. Cattle, rice fields and toilets

	I	II	III	IV	V
a.	iii	iv	v	i	ii
b.	v	i	iii	iv	ii
c.	v	iv	i	ii	iii
d.	iii	iv	i	v	ii

4. Deforestation does not lead to

   a. Quick nutrient cycle

   b. Soil erosion

   c. alteration of local weather condition

   d. destruction of natural habitat of wild animals

5. Parthenium hysterophrus is an alien invasive species, which?

   a. decreases the oxygen content of the waterbodies which leads to eutriplication

   b. Reduces the availability of fodder for animals

   c. Reduces the growth of surrounding plants by inhibiting germination and root elongation

   d. Arrest wind erosion

6. Which among the following micro algae group that is responsible for capturing and storing carbondioxide?

   a. Tecomastans, Chloella, Chroococcus, Chlamydomonous

   b. Chlorella, Scenedesmus, Chroococcus, Chlamydomonas

   c. Eugenia caryohyllata, chlorella, chroococcus, chlamydomonas

   d. macro algae, chlorella, chroococcus, chlamydomonas

7. The aquatic invasive species is

   a. Lantana camara b. Eichhornia crassipes

   c. Parthenimum hysterophorus d. Prosopis juliaflora

8. Which among the following is the man-made lake?

   a. Chembarampakkam lake b. Maduranthakam lake

   c. Sholavaram lake d. Puzhal lake

9. Find the correctly matched pair:

Plants	Indicators
a. Lichens, ficus, pinus, rose	SO_2 pollution
b. petunna, chrysanthemum	Nitrite
c. Gladiolus	Chloride pollution
d. Robinia pseudoacacia (Black locust tree)	Indicator of light metal contamination

10. _____ is an example for live fence of fodder trees.

a. Albizzia lebbek b. Sesbania grandiflora

c. Azardirachta indica d. Acacia nilotica

XII BOTONY

PLANT BREEDING

1. Which biofertilizer is mostly used in paddy fields?

   a. Glomus b. Rhizobium

   c. Penicillium d. Bacillus

2. In an organic gardening _____ provides carbohydrates for plants.

   a. Arbuscular b. Seaweed liquid fertilizer

   c. Biopesticides d. All the above

3. Which of the following is correctly paired?

   a. Arbuscular mycorrhizae – Symbiotic association

   b. Trichoderma - Entomopathogenic

   c. Beauveria - Free living

   d. Aspergillus - Bacteria

4. Main objective of green manuring

   a. To increase phosphorous b. To increase carbohydrate

   c. To increase potassium d. To increase nitrogen

5. Match Column I with Column II and select the correct option from the given codes.

Column I	Column II
i. Crotalaria juncea	I. Green leaf manuring
ii. Pongamia Pinnata	II. Biofertilizer
iii. Azospirillum	III. Seaweed liquid fertilizer
iv. Kelp	IV. Green in-situ manuring

a. i – II, ii – I, iii – III, iv – IV

b. i – IV, ii – II, iii – I, iv – III

c. i – IV, ii – I, iii – II, iv – III

d. i – II, ii – III, iii – I, iv – IV

6. The newly introduced plant has to adapt itself to the new environments is called

a. Primary introduction b. Selection

c. Quarantine d. Acclimatization

7. Progeny possess superiority over parents in vegetative growth only is called

a. Psuedoheterosis b. Euheterosis

c. Mutational heterosis d. Balanced heterosis

8. Match column I with column II and select the correct option from the given codes.

Column I	Column II
i. TN 1	I. Philippines
ii. IR 8	II. Mexico
iii. Sonara 63	III. Taiwan
iv. Ratna	IV. India

a. i – I, ii – II, iii – IV, iv – III

b. i – III, ii – II, iii – I, iv – IV

c. i – III, ii – I, iii – II, iv – IV

d. i – I, ii – III, iii – II, iv – IV

9. Which of the following is incorrect paired?

a. Dr. M. S. Swaminathan - Pioner of Mutation breeder

b. De candolle - Origin of cultivated plants

c. Nel Jayaraman - Best Genome savior

d. Dr. B. P. Pal - Sugarcane breeder

10. _____ is a physiological preconditioning of the seed.

a. Seed treatment b. Seed hardening

c. Seed pelleting d. Seed coating

XII BOTONY

PLANT TISSUE CULTURE

1. The ability of Callus to form whole plant is called as

a. Dedifferentiation b. Redifferentiation

c. Differentiation d. Embryogenesis

2. The sterilization of the culture room is done by

a. 2% Sodium hypochlorite b. 95% Ethanol

c. 5% Sodium hypochlorite d. Both (a) and (b)

3. Callus first produces

a. Inoculants b. Plantlets

c. Embryoids d. Entire plants.

4. In plant tissue culture biosynthesis and isolation of Indole alkaloids is from _____.

a. Amaranthus viridis b. Capsicum annum

c. Catharanthus roseus d. Cinchona officinalis

5. Cell suspension culture is useful for the production of

a. Flavinoids b. Terpinoids

c. Phenolic compounds d, All of them

6. In cryopreservation, the plant materials are subjected to very low temperature of _____°C and _____.

a. 196°C and Nitrate solution

b. 196°C and Ammonia solution

c. 190°C and liquid Nitrogen

d. 196°C and liquid Nitrogen

7. Resources for germplasm conservations are collection of

a. Seeds b. Pollen grains

c. Ovules d. Both (a) and (b)

8. GEAC means

a. Genetic Engineering Appraisal Committee

b. Genetic Engineering Accepted Committee

c. Genetic Engineering Admitting Committee

d. Genetic Engineering Approval Committee

9. Virus free plants are produced by culture of

a. Root tip culture b. Shoot tip culture

c. Floral bud culture d. Leaf primordium

10. Dimethyl sulphoxide, glycerol and sucrose are used as

a. Cryopreservation b. Cryoprotectants

c. Vernalisation d. Sterilization

XII BOTONY

ECONOMIC BOTANY

1. Chick pea protein is rated high in terms of

   a . Aminoacid content and digestibility

   b. Carbohydrate content and digestibility

   c. Aminoacid and lipid content

   d. Carbohydrate and lipid content

2. World's No: 1 Banana producer is

   a. India b. China

   c. Tamil Nadu d. Kerala

3. Edible part of Papaya is _____ .

   a. Mesocarp and Endocarp b. Mesocarp

   c . Fleshy receptacle d. Pericarp

4. Which of the following is the mixture of glucoside?

   a. Phyllanthin b. Tharamin

   c. Aloin d. Vasin

5. 'King of bitters' is

   a. Ocimum tenuiflorum b. Phyllanthus emblica

   c. Andrographiic paniculata d. Acalypha indica

6. Shamans and traditional healers used

a. Ayurveda system of medicine b. Siddha system of medicine

c. Folk system of medicine d. Psychoactive drugs

7. Major constituent of Gloriosa superba is

a. Citronella b. Geraniol

c. Colchicine d. Tharamin

8. Mushrooms can be a part and parcel of every day's food as it forms a good source of

a. Protein and other nutrients b. Nucleic acid

c. Carbohydrates and vitamins d. Lipids and vitamins

9. The extract which is effective against hepatitis B virus is

a. Phyllanthus amarus b. Justicea adhatoda

c. Andrographiic paniculata d. Curcuma longa

10. The part of poppy plant exudates which yield opium is

a. Bark b .Root

c. Stem d. Fruits

XII STANDARD-BIOLOGY

Reproduction in Organisms

1. Sexual reproduction is characterized by
   a) Two parent participation
   b) Formation gametes
   c) Fusion of gametes
   d) All of these
2. Asexual reproduction is common among all except
   a) Unicellular organisms
   b) Plants with simple organization
   c) Animals with simple organization
   d) Animals with complex organization
3. Name an organism where cell division is itself a mode of reproduction?
   a) Amoeba
   b) E.coli
   c) Euglena
   d) All of these
4. Which of the following mammals not show menstrual cycle?
   a) monkeys
   b) apes
   c) humans
   d) chimpanzee
5. Find the correct statement.
   a) 'Reproductive phase' is of same duration in all organisms.
   b) Birds in captivity can be made to lay eggs throughout the year
   c) Female of non-primates shows cyclical changed during reproductive phase which is known as menstrual cycle.
   d) Perennial plants show clear cut vegetative, reproductive and senescent phase
6. 'Humans' are
   a) Seasonal breeder
   b) Continuous breeder
   c) Both (a) and (b)
   d) None of these
7. Which of the following can be considered as one of the parameter of senescence of old age?
   a) End of juvenile or vegetative phase
   b) End of reproductive phase
   c) Hormonal imbalance
   d) Slowing of metabolism due to disease
8. Select the examples of hermaphrodite organisms among these.
   a) Earthworm
   b) Tapeworm
   c) Leech
   d) All of these

9. The most critical event in sexual reproduction is
   a) Gametogenesis
   b) Gamete transfer
   c) Fertilization(Syngamy)
   d) Embryogenesis
10. Parthenogenesis shown by
   a) Rotifers
   b) Honey bees
   c) Some lizards and birds(turkey)
   d) All of these
11. External fertilization is seen in all of these except
   a) Algae
   b) Amphibians
   c) Fishes
   d) Mammals
12. Life in all organism starts from
   a) Single cell zygote
   b) Two celled zygote
   c) Single cell embryo
   d) Multicellular embryo
13. The chances of survival of the young one is greater in
   a) Internal fertilization
   b) External fertilization
   c) Oviparous animals
   d) Viviparous animals
14. Gametes in haploid organisms are produced by
   a) Amitosis
   b) Mitosis
   c) Meiosis
   d) Cleavage
15. Embryonal protection and care are better in
   a) Oviparity
   b) Parthenogenesis
   c) Viviparity
   d) Polyembryony
16. What is the number of non-primate mammals in this series?
   Cow, sheep, rat, deer, dog, tiger, monkey, human and ape
   a) 3 b) 4 c) 6 d) 7
17. The term ‘ clone’ cannot be applied to an offspring formed by sexual reproduction because
   a) Offspring do not possess exact copies of parental DNA
   b) DNA of only one parent is copied and passed on to the offspring
   c) Offspring are formed at different times.
   d) DNA of parent and offspring are completely different.

18. There is no natural death in single celled organisms like amoeba and bacteria because
   a) They cannot reproduce sexually
   b) They reproduce by binary fission
   c) Parental body is distributed among the offspring
   d) They are microscopic
19. There are various types of reproduction. The type of reproduction adopted by an organism depends on
   a) The habitat and morphology of the organism
   b) Morphology of the organism
   c) Morphology and physiology of the organism
   d) The organism's habitat, physiology and genetic makeup.
20. Clones are
   a) Morphologically similar
   b) Genetically similar
   c) Both (a) and (b)
   d) None of these

XII STANDARD-BIOLOGY

HUMAN REPRODUCTION

1. The male sex hormone testosterone is secreted from
   a) vas deferens b) epididymis
   c)leydig's cell d) prostate gland
2. The absence or non-occurrence of menstrual periods is called
   a) menarche b) menopause
   c) gonadarche d) amenorrhoea
3. The uterus layer which sloughs off in every mensutrual cycle
   a) perimetrium b) myometrium
   c) endometrium d) decidus
4. Spermatogenesis take an average
   a) 64 days b) 81 days c) 90 days d) 74 days
5. The nutritive cells found in seminiferous tubules are
   a) leydig cells b) artetic follicular cells
   c) sertoli cells d) chromaffin cells
6. Placenta in human beings is formed by
   a) amnion b) chorion
   c) allantois d) allantois, chorion and uterine wall
7. The secondary oocyte is in arrested stage and does not undergo second meiotic division until
   a) LH surge does not occur
   b) estradiol level is not upto threshold level for ovulation
   c) a sperm enters it
   d) polar bodies disintegrate

8. Implantation of the zygote takes place at which of the following embryonic stage?
   a) gastrula b) morula
   c) blastula d) single-celled
9. Gastrula is the embryonic stage in which
   a) cleavage occurs b) blastocoel forms
   c) germinal layer form d) villi form
10. Ecotopicpregenancy is
    a) Abnormal growth of the foetus in the womb
    b) Foetus growing half in Fallopian tube and half in uterus
    c) Implantation near to the cervix
    d) growth of the foetus outside the uterus

11.A reaction of granular content which harden the zona pellucida and ensures slow block to polyspermy is
a) acrosomal reaction b) cortical reaction
c) acrosin reaction d) binding reaction

12. Which one is released from the ovary?
a) primary oocyte b) secondary oocyte
c) ovum d) oogonium

13. The extra embryonic membranes of the mammalian embryo are derived from
a) trophoblast b) inner cell mass
c) formative cells d) follicle cells

14. The middle piece of the sperm contains
a) proteins b) mitochondria
c)centriole d) nucleus

15. After ovulation Graaffian follicle regresses into
a) corpus artesia b) corpus callosum
c) corpus luteum d) corpus albicans

16. In human adult females oxytocin
a) stimulates pituitary to secrete vasopressin
b) causes strong uterine contractions during parturition
c) is secreted by anterior pituitary
d) stimulates growth of mammary glands

17. Which extra embryonic membrane in human prevents desiccation of the embryo inside the uterus?
a) yolk sac b) amnion
c) chorion d) allantosis

18.Foetal ejection reflex in human female is induced by
a) release of oxytocin from pituitary
b) fully developed foetus and placenta
c) differentiation of mammary glands
d) pressure exerted by amniotic fluid

19. How many sperms are formed from a secondary spermatocyte
a) 4 b) 8 c) 2 d) 1

20. Polar bodies are produced during the formation of
a) spermatocytes b) ova
c) sperm d) spermatid

21.Foetus gets nourishment and oxygen through
a) allantois b) placenta
c) yolk sac d) chorion

22. Failure of descent of testis in scrotal sacs is called
    a) vasectomy b) tubectomy
    c) cryptorchidism d) impotency
23. The mammalian corpus luteum produces
    a) estrogen b) luteotropic hormone
    c) progesterone d) luteinizing hormone
24. Cessation of menstrual cycle in a woman is called
    a) lactation b) ovulation
    c) menopause d) parturition
25. Which of the following cells provide nutrition to the sperm?
    a) Leydig's cells b) Granulosa cells
    c) Primary germ cells d) Sertoli cells

XII STANDARD- BIOLOGY

Reproductive health

1. What are the various aspects of reproduction covered by WHO?
   a) Physical, Emotional, Behavioural
   b) Physical, Emotional, Behavioral, Social
   c) Physical, Emotional, Gestational, Social
   d) Physical, Emotional, focused
2. Which was the first country in the world to initiate a national wide programme for reproductive health?
   a) China
   b) USA
   c) India
   d) Russia
3. The programme of '*Family planning'* was initiated in the year
   a) 1950
   b) 1947
   c) 1949
   d) 1951
4. The fluid which envelope the developing foetus is called
   a) Chorionic fluid
   b) Placental fluid
   c) Amniotic fluid
   d) Uterine fluid
5. Statutory ban has been laid onto check female foeticide by
   a) Choricocentesis
   b) Amniocentesis
   c) Uterocentesis
   d) Embryocentesis
6. In lactational amenorrhea, which event does not occur in menstrual cycle?
   a) Menstrual flow
   b) Ovulation
   c) Follicular phase
   d) Luteal phase
7. Which of the following is not applicable to female for contraception?
   a) Diaphragms
   b) Vasectomy
   c) Condoms
   d) Cervical caps
8. Multi load 375 is a
   a) Disease resistant crop
   b) N_2O viral vector
   c) Intrauterine Device
   d) Biological warfare device

9. Progestin is a/an....
   a) Oral contraceptive
   b) Natural contraceptive
   c) Hormonal IUD
   d) Implant contraceptive
10. Which of the following is a most widely used contraceptive in India?
   a) IUD
   b) Pills
   c) Barrier method
   d) Natural method
11. Sterilization procedure in males is known as
   a) Tubectomy
   b) Vasectomy
   c) Testectomy
   d) Spermectomy
12. Surgical method for terminal contraceptive work on which of the following grounds?
   a) Block gamete transport
   b) Block gamete generation
   c) Alter biochemical nature of gamete
   d) Destroys gamete permantly
13. Sterilization procedure in female is known as
   a) Vasectomy
   b) Tubectomy
   c) Hysterectomy
   d) Ovotomy
14. In order to prevent STDs, which of the following is not correct?
   a) Avoid sex with unknown partners/multiple
   b) Go to an unqualified doctor at earliest instance of STD
   c) Always using the condoms during coitus
   d) Participate in sex education sessions
15. The reasons for infertility can be
   a) Physical
   b) Diseases
   c) Psychological
   d) All of them
16. Which infection can be transmitted by sharing of injection needles, surgical instrument, etc., with infected persons, through transfusion of blood, or from infected mother to the foetus?
   a) AIDS
   b) Hepatitis
   c) Gential Herpes
   d) Both (a) and (b)

17. Severe complication of STDs lead to further complications like
    a) Abortion
    b) Still birth
    c) Ectopic pregnancy
    d) All of them
18. Fertilization outside the body is almost similar condition as that inside the body is termed as
    a) In vitro fertilization
    b) Ex vivo fertilization
    c) In vivo fertilization
    d) Ex vitro fertilization

XII STANDARD -BIOLOGY
Principles of inheritance and variation

1. Albinism in man is caused due to absence of one enzyme necessary for the synthesis of melanin. It is
   a. Tyrosinase
   b. Lysine
   c. Melanase
   d. Luciferase
2. Holandric genes are present on
   a. X-chromosomes
   b. Y-chromosomes
   c. Sex chromosomes as well as autosomes
   d. Autosomes only
3. Which of the following symbol and its representation used in human pedigree analysis as correct?
   a. □ = ○Mating between relatives
   b. ◯ = Unaffected male
   c. □ = Unaffected female
   d. ■ = Male affected
4. Mark the incorrect pair with respect to sex determination
   a. ZW-ZZ type –fishes
   b. ZO-ZZ type - birds
   c. XX – XO type – Dioxorea
   d. XX - XY type – melandrium
5. Which of the following condition correctly describes the manner of determining sex in the given examples?
   a. Homozygous sex chromosomes (XX) produce the male in Drosophila
   b. Homozygous sex chromosomes (ZZ) determine female sex in birds
   c. XO type of sex chromosomes determine male sex in grasshopper
   d. XO condition in humans as found in turner's syndrome determine female sex
6. Which of the following statement about a barr body is incorrect
   a. Observed by Barr and Bertram
   b. Can be seen in neutrophils of females as drumstick
   c. The number of barr bodies is one less than the number of autosomes
   d. Normal male has no barr body
7. If both parents are carriers for thalassemia, which is an autosomal recessive disorder, what are the chances of pregnancy resulting in the affected child?

   a. No chance
   b. 50%
   c. 25%
   d. 100%

8. In the XX- XO type of sex determination
   a. Females produce only one type of eggs
   b. Females have only one X chromosome
   c. Males have two X chromosomes
   d. Males are homogametic

9. A human female with turners syndrome
   a. Has 45 chromosome with XO
   b. Has one additional X chromosome
   c. Exhibits male characters
   d. Is able to produce children with normal husband
10. 'Kappa Particles' were discovered by
   a. Correns
   b. Sonneborn
   c. Rhoades
   d. Bycott et.al
11. A colourblind man marries a woman with normal sight who has no history of colorblindness in her family. What is the probability of their grandson being colourblind?
   a. 0.25
   b. 0.5
   c. 1
   d. Nil
12. A gene is said to be dominant if
   a. It expresses its effect only in homozygous stage
   b. It expresses its effect only in heterozygous condition
   c. It expresses its effect both in homozygous and heterozygous conditions
   d. It never expresses in any condition
13. Which of the following is not a hereditary disease?
   a. Haemophilia
   b. Cretinism
   c. Cystic fibrosis
   d. Thalassemia
14. Match the terms in column I with their description in column II and choose the correct option
   a. Dominance - (i) Many genes govern a single character.
   b. Co- dominance - (ii) In a heterozygous organism only one allele expresses itself.
   c. Pleiotropy - (iii) In a heterozygous organism both alleles express themseves fully
   d. Polygenic inheritance - (iv) A single gene influences many characters

	A	B	C	D
a	(ii)	(i)	(iv)	(iii)
b	(ii)	(iii)	(iv)	(i)
c	(iv)	(i)	(ii)	(iii)
d	(iv)	(iii)	(i)	(ii)

15. Which of the following generates new genetic combinations leading to variation?
   a. Sexual reproduction
   b. Nuclear polyembryony
   c. Vegetative reproduction
   d. Parthenogenesis

16. Assertion: A father may be a hemophilic only if his mother is carrier
Reason: A father cannot pass on a sex linked gene to his son.
    a. Both assertion and reason are true and the reason is the correct explanation of the assertion
    b. Both assertion reason are true but reason is not the correct explanation of the assertion
    c. Assertion is true but reason is false
    d. Both assertion and reason are false

17. Which one is the incorrect statement with regards to the importance of pedigree analysis?
    a. It helps to trace the importance of a specific trait.
    b. It helps to confirm that DNA is the carrier of genetic information.
    c. If helps to understand whether the trait in question is dominant or recessive
    d. It confirms that the trait is linked to one of the autosomes

18. A girl has blood group 'A' and her brother has blood group 'B' which combination of genotypes *cannot* belong to their parents?

	Mother	Father
a	$I^A I^A$	I^B I^O
b	I^A I^B	I^A I^B
c	I^O I^O	I^A I^B
d	I^B I^O	I^A I^O

19. Down syndrome in humans is due to
    a. Two 'Y' Chromosomes
    b. Three 'X' chromosomes
    c. Three copies of chromosomes 21
    d. Monosomy
20. 'Chrismas disease' is another name for
    a. Sleeping sickness
    b. Haemophilia- B
    c. Hepatitis –B
    d. Haemophilia –A

21. Multiple alleles are present:
    a. At different loci on the same chromosomes
    b. At the same locus of the chromosome
    c. On non- sister chromatids'
    d. On different chromosomes
22. In Drosophila the sex is determined by
    a. Whether the egg is fertilized or develops from egg genetically
    b. The ratio of number of X chromosomes to the sets of autosomes
    c. X and Y chromosomes
    d. The ratio of pairs of X- chromosomes to the pairs of autosomes

23. An abnormal human baby with 'XXX' sex chromosomes was born due to
    a. Formation of abnormal ova in the mother
    b. Fusion of two ova and one sperm
    c. Fusion of two sperms and one ovum
    d. Formation of abnormal sperms in the father

24. Which of the following conditions in humans is correctly matched with its chromosomal abnormality linkage?
    a. Klinefelter's syndrome -- 44 autosomes + XXY
    b. Colour blindness – Y linked
    c. Erythroblastocisfoetalis – X-linked
    d. Down's syndrome _ 44 autosomes +XO

25. Pick out the correct statements:
    1) Haemophillia is a sex- linked receive disease

    2 Down syndrome is due to aneuploidy

    3) Phenylketonuria is an autosomal recessive gene

    4) Sickle cell anaemia is a X- linked recessive gene disorder

a) (1) and (4) are correct b) (2) and (4) are correct

c) (1) (3) and (4) are correct d) (1) (2) and (3) are correct

26.A disease caused by an autosome primary non-disjunction is
    a. Klinefelter's syndrome
    b. Turner's syndrome
    c. Sickle cell anaemia
    d. Down syndrome

27. ZZ-ZW type of sex determination is seen in

    a. Platypus
    b. Snail
    c. Cockroach
    d. Peacock

XII- STANDARD -BIOLOGY

Evolution

1. Who proposed the theory of chemical evolution for the first time?
   a) Oparin and Haldane
   b) Miller
   c) Louis Pasteur
   d) Charles Darwin
2. Evidence of evolution from fossils is known as
   a) Paleontological evidence
   b) Embryological evidence
   c) Physiological evidence
   d) Biochemical evidence
3. Homologous organ represents
   a) Convergent evolution
   b) Divergent evolution
   c) Anthropogenic evolution
   d) Genetic drift
4. Analogous organs represent
   a) Convergent evolution
   b) Divergent evolution
   c) Anthropogenic evolution
   d) Genetic drift
5. Select the false statement/s.
   A) *Dryopithecus* was more Ape-like
   B) *Ramapithecus* was more Man-like
   C) *Dryopithecus* and *Ramapithecus* both were hairy and walked like gorillas and chimpanzees.
   D) *Australopithecus*lived in the East African grassland probably 3-4 mya.
      a) B only
      b) B and C only
      c) D only
      d) All are correct
6. Arrange the following in the order of their evolution
   a) Homo habilis→ Ramapithcus →Homo erectus →Dryopithecus→ Homo sapiens →Australopithecines→ Neanderthal man
   b) Drypithecus→ Ramapithecus→ Australopithecus →Homo habilis Homo erectus →Neanderthal man →Homo sapiens
   c) Australopithecines→ Homosapiens →Ramapithecus →Dryopithecus →Homo habilis→ Homo erectus →Neanderthal man
   d) Neanderthal man→ Australopithecines →Homo sapiens →Homo erectus →Homo habilis →Ramapithecus →Dryopithecus
7. How many factors affect the Hardy-Weinberg equilibrium?
   a) 2
   b) 3
   c) 4
   d) 5

8. The idea that life originates from pre-existing life is referred to as
   a) Biogenesis theory
   b) Abiogenesis theory
   c) Extraterrestrial theory
   d) Special creation theory
9. 'Modern theory of origin of life' was propounded by
   a) Oparin
   b) Miller
   c) Darwin
   d) Khorana
10. The evolution of numerous species, such as Darwin's finches from a single ancestor is called
   a) Gradualism
   b) Adaptive radiation
   c) Sympatric speciation
   d) Geographical isolation
11. Fossil X is older than fossil Y because
   a) Fossil Y was found in deeper sedimentation
   b) Fossil X was found in deeper sedimentation
   c) Fossil Y has some vestigial organs functional in X
   d) Fossil Y has homologous and analogous organs of X
12. Our best estimate for the age of Earth, which is 4.5 billion years is supported by
   a) Gradualism
   b) Big bang theory
   c) Assumption of uniformitarianism
   d) Radioactive dating of the oldest rocks found
13. The correct order of Era is
   a) Palaeozoic→ Mesozoic →Coenozoic
   b) Mesozoic →Archaeozoic →Proterozoic
   c) Palaeozoic →Archaezoic →Coenozoic
   d) Archaeozoic→ Palaeozoic →Proterozoic
14. Lamarck's theory of evolution is called
   a) Inheritance of acquired characters
   b) Theory of special creation
   c) Survival of the fittest
   d) Natural selection
15. The theory of use and disuse of organs was given by
   a) Lamarck
   b) Darwin
   c) Weismann
   d) Hugo de Vries
16. The concepts of natural selection in evolution were proposed by
   a) Hugo de Vries
   b) Charles Darwin
   c) August Weismann
   d) Jean Baptiste de Lamarck

17. Survival of the fittest is possible due to
    a) Overproduction
    b) Favourable variations
    c) Environmental changes
    d) Inheritance of acquired characters.
18. Which of the following is not under Darwin's theory of natural selection?
    a) Over production
    b) Survival of the fittest
    c) Causes of variation
    d) Struggle for existence
19. Sum of all the genes in a population is called
    a) Genome
    b) Gene pool
    c) Germplasm
    d) Gene bank
20. Genetic drift operated in
    a) Large isolated population
    b) Small isolated population
    c) Fast reproductive population
    d) Slow reproductive population
21. Which of the following concepts is known as the Sewall Wright effect?
    a) Genetic drift
    b) Isolation
    c) Gene pool
    d) Gene flow
22. Directional selection _____
    a) Work against adaptive traits
    b) Favours intermediate forms of a trait
    c) Eliminates uncommon form of alleles
    d) Shift allele frequencies in a steady, consistent direction

23. Disruptive selection _____
    a) Eliminated uncommon forms of alleles
    b) Does not favour intermediate forms of a trait
    c) Work against adaptive traits
    d) Shifts allele frequencies in a steady, consistent direction
24. Industrial melanism was highlighted by
    a) Tasmanian wolf
    b) Rock python
    c) Mimosa pudica
    d) Bistonbetularia
25. Speciation usually occurs
    a) Suddenly
    b) By genetic drift
    c) When populations are geographically isolated
    d) When populations are not geographically isolated.

XII-STANDARD -BIOLOGY

Human health and disease

1. The organisms which cause disease in plants and animals are called
   a) Pathogens
   b) Vectors
   c) Insects
   d) Worms
2. The chemical test that is used for diagnosis of typhoid is
   a) ELISA Test
   b) ESR Test
   c) PCR Test
   d) Widal Test
3. The sporozoites that cause infection, when a female anopheles mosquito bites a person are formed in
   a) liver of person
   b) RBCs of mosquito
   c) Salivary glands of mosquito
   d) Intestine of mosquito
4. The disease chikungunya is transmitted by
   a) House flies
   b) Aedes mosquitoes
   c) Cockroach
   d) Female anopheles
5. Many diseases can be diagnosed by observing the symptoms in the patient. Which group of symptoms are indicative of pneumonia?
   a) Difficulty in respiration, fever, chills, cough, headache.
   b) Constipation, abdominal pain, cramps, blood cells.
   c) Nasal congestion and discharge, cough, sore throat, headache.
   d) High fever, weakness, stomach pain, loss of appetite and constipation
6. The genes causing cancer are
   a) Structural genes
   b) Expressor genes
   c) Oncogenes
   d) Regulatory genes
7. In malignant tumours. This stage of disease is called
   a) Metagenesis
   b) Metastasis
   c) Teratogenesis
   d) Mitosis

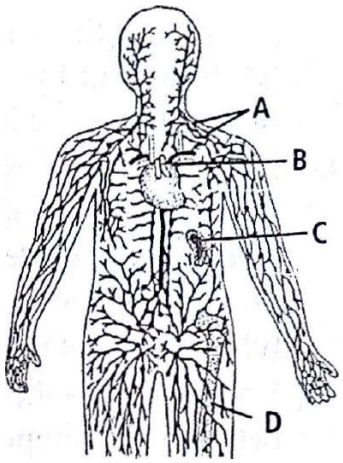
8. Which of the following are the reason(s) for Rheumatoid arthritis? Choose the correct option.
   i. The ability to differentiate pathogens or foreign molecules from self – cells increases.
   ii. Body attacks self – cells
   iii. More antibodies are produced in the body
   iv. The ability to differentiate pathogens or foreign molecules from self-cells is lost.
   a) i and ii
   b) ii and iv
   c) iii and iv
   d) i and iii
9. AIDS is caused by HIV. Among the following, which one is not a mode of transmission of HIV?
   a) Transfusion of contaminated blood
   b) Sharing the infected needles
   c) Shaking hands with infected persons
   d) Sexual contact with infected persons

10. 'Smack' is a drug obtained from the
   a) Latex of *papaver somniferum*
   b) Leaves of cannabis sativa
   c) Flowers of datura
   d) Fruits of erthyroxylum coca
11. The substance produced by a cell in viral infection that can protect other cells from further infection is
   a) Serotonin
   b) Colostrum
   c) Interferon
   d) Histamine
12. Transplantation of tissues/organs to save certain patients often fails due to the rejection of such tissues/ organs by the patient. Which type of immune response is responsible for such rejections?
   a) Auto – immune response
   b) Humoral immune response
   c) Physiological immune response
   d) Cell – mediated immune response
13. Antibodies present in colostrum which protect the new born for certain diseases is of
   a) IgG type
   b) IgA type
   c) IgD type
   d) IgE type

14. Tobacco consumption is known to stimulate the secretion of adrenaline and nor-adernaline, due to presence of
    a) Nicotine
    b) Tannic acid
    c) Curamin
    d) Catechin
15. The anti – venom against snake poison contains
    a) Antigens
    b) Antigen – antibody complexes
    c) Antibodies
    d) Enzymes
16. Which of the following is not a lymphoid tissue?
    a) Spleen
    b) Tonsils
    c) Pancreas
    d) Thymus
17. Which of the following is a lymphoid tissue?
    a) Pineal
    b) Pituitary
    c) Thymus
    d) Thyroid
18. Hemozoin is a
    a) Precursor of haemoglobin
    b) Toxin released from streptococcus infected cells
    c) Toxin released from plasmodium infected RBC.
    d) Toxin released from haemophilus infected cells.
19. One of the following is not the causal organism for ringworm.
    a) Microsporum
    b) Trichophyton
    c) Epidermophyton
    d) Macrosporum
20. A person with sickle cell anaemia is
    a) More prone to malaria
    b) More prone to typhoid
    c) Less prone to malaria
    d) Less prone to typhoid

XII-STANDADRD – BIOLOGY
IMMUNOLOGY

1. Which of the following is incorrectly matched?
   (a) Autograft – Grafting of one's own tissue to another part of the body.
   (b) Isograft - Transplantation from a twin brother or sister.
   (c) Allograft - Transplantation between individuals of same species with same genetic make up.
   (d) Xenograft - Transplantation between animals of different species.
2. Antibodies produced by a group of identical B-cells against a single epitope of an antigen are called
   (a) polyclonal antibodies
   (b) monoclonal antibodies
   (c) anti-hapten antibodies
   (d) somaclonal antibodies.
3. In higher vertebrates, the immune system can distinguish self-cells and non-self. If this property is lost due to genetic abnormality and it attacks self-cells, then it leads to
   (a) autoimmune disease (b) active immunity
   (c) allergic response (d) graft rejection.
4. If you suspect major deficiency of antibodies in a person, to which of the following would you look for confirmatory evidence?
   (a) Haemocytes (b) Serum globulins
   (c) Fibrinogen in plasma (d) Serum albumins
5. Which of the following best explains the difference between an epitope and an antigen?
   (a) An epitope is any foreign substance; an antigen is a foreign protein.
   (b) An epitope is the part of an antigen where an antibody or lymphocyte receptor binds.
   (c) An antigen is the part of an epitope where an antibody or lymphocyte receptor binds.
   (d) Antigens are recognised by Bcells and antibodies, epitopes are recognised by T cells.
6. Read the given statements.
   (i) IgE antibodies are produced in an allergic reaction.
   (ii) B-lymphocytes mediate cell mediated immunity.
   (iii) The yellowish fluid colostrum has abundant IgE antibodies.
   (iv) Spleen is a secondary lymphoid organ.
   Of the above statements
   (a) (i) only is correct
   (b) (i) and (ii) are correct
   (c) (ii) and (iii) are correct
   (d) (i) and (iv) are correct.
7. Given below is the diagram of human lymphatic system, where A, B, C and D are lymphoid organs. Select incorrect option regarding the lymphoid organs.



(a) T cells mature in B
(b) B and T cells undergo maturation in C
(c) B and T cells undergo proliferation and differentiation in A
(d) B cells mature in D

8. Originating in bone marrow, circulating in blood for 1-2 days, migrating to connective tissue and forming macrophages is a characteristic of
(a) eosinophils (b) basophils
(c) monocytes (d) lymphocytes.

9. Which one of the following immune system components does not correctly match with its respective role?
(a) Interferons - secreted by virus-infected cells and protect non-infected cells from further viral infection.
(b) B-lymphocytes - produces antibodies in response to pathogens in blood to fight with them
(c) Macrophages - mucus secreting cells that trap microbes entering in the body.
(d) IgA - present in colostrum in early days of lactation and protect infant from diseases.

10. When a person is given pre-formed antibodies, then the type of immunity is
(a) naturally acquired passive immunity
(b) naturally acquired active immunity
(c) artificially acquired active immunity
(d) artificially acquired passive immunity.

11. The Human Immunodeficiency Virus causes AIDS by
(a) depleting CD4+ T-helper lymphocytes
(b) increasing CD4+ T-helper lymphocytes
(c) depleting CD5+ T-helper lymphocytes
(d) depleting CD4+ T-helper erythrocytes.

12. Which form of pathogen is used in vaccination?
(a) Activated and strong pathogenic antigens
(b) Inactivated and weakened pathogenic antigens
(c) Hyperactive and strong pathogen
(d) Preformed antibodies

13. The genetic material of HIV is
(a) dsDNA (b) dsRNA
(c) ssDNA (d) ssRNA

14. Which of the following statements is incorrect?
(a) Perforins are chemicals produced by Natural killer cells to create pores in the plasma membrane of the target cells.
(b) Acquired immunity consists of specialised cells and antibodies that circulate in the body fluid.
(c) Humoral immunity provides immunity against cancer.
(d) T-cells defend against pathogens including protists and fungi that enter the cells.

15. Which of the following cells actively participate during allergy?
(a) B-lymphocytes (b) Liver cells
(c) Mast cells (d) Red blood cells

16. Which one of the following is not an autoimmune disease?
(a) Graves' disease
(b) Pernicious anaemia
(c) Rheumatoid arthritis
(d) Insomnia

17. AIDS is characterised by
(a) decrease in the number of killer T-cells
(b) decrease in the number of suppressor T-cells
(c) decrease in the number of helper T-cells
(d) increase in the number of helper T-cells.

18. Rejection of tissue or organ transplants is brought about mainly by
(a) cytotoxic T cells (b) NK cells
(c) suppressor T cells (d) B cells.

19. Read the given statements carefully.
(i) Innate immunity is a specific type of defence, that is present at the time of birth.
(ii) Malignant malaria is caused by Plasmodium falciparum.
(iii) Malaria could be confirmed by Widal test.
(iv) Active immunity is slow and takes time to give its full effective response.
(v) Saliva in the mouth acts as physiological barrier for pathogens.
Which of the above statements are correct?
(a) (ii), (iv) and (v) (b) (i), (iii) and (v)
(c) (i) and (v) (d) (ii), (iii) and (v)

20. How many polypeptide chains are present in gamma immunoglobulin?
(a) 5 (b) 4
(c) 6 (d) 2

XII-STANDARD - BIOLOGY

MICROBES IN HUMAN WELFARE

1. Which of the following in sewage treatment removes suspended solids?
   a) Tertiary treatment b) Secondary treatment
   c) Primary treatment d) Sludge treatment
2. Which of the following is correctly matched for the product produced by them?
   a) Acetobacter aceti : Antibiotics
   b) Methanobacterium : Lactic acid
   c) Penicilium Notatum : Acetic acid
   d) Saccharomyces cerevisial : Ethanol
3. What gases are produced in anaerobic sludge digesters?
   a) Methane and CO_2
   b) Methane, hydrogen sulphide and CO_2
   c) Methane, hydrogen sulphide and O_2
   d) Hydrogen sulphide and CO_2
4. A nitrogen fixing microbe associated with azolla in rice fields is _____
   a) Spirulina b) Anabaena c) Frankia d) Tolypothrix
5. Monascus purpureus is a yeast used commercially in the production of _____
   a) Ethanol b) Streptokinase c) Citric acid d) Statins
6. Yeast is used in the production of_____
   a) Citric acid and lactic acid
   b) Lipase and pectinase
   c) Bread and beer
   d) Cheese and butter
7. Which one of the following is an example of carrying out biological control of pest/diseases using microbes?
   a) Trichoderma sp. against certain plant pathogens
   b) Nucleo polyhedrovirus against white rust in Bacteria
   c) Bacillus thuringiensis in Cotton plant to increase yield
   d) Lady bird beetle against aphids in mustard
8. A patient brought to a hospital with myocardial infraction is normally immediately given_____
   a) Penicillin b) Streptokinase c) Cyclosporin-A d) Statins

9. An organism used as bio-fertilizer for raising soyabean crop is_____
   a) Azospirillum b) Rhizobium c) Nostac d) Azotobacter
10. Ethanol is commercially produced through a particular species of_____
   a) Clostridium b) Trichoderma c) Aspergillus d) Saccharomyces
11. Which one of the following is not a bio-fertilizer?
   a) Rhizobium b) Nostac c) Mycorrhiza d) Agrobacterium
12. The most common substrate used in distilleries for the production of ethanol is_____
   a) Soyameal b) Groundgram c) Molasses d) Corn meal
13. Organisms called methanogens are most abundant in a _____
   a) Cattle yard b) Polluted stream c) Hot spring d) Sulphur rock
14. The free living, anaerobic nitrogen fixer is_____
   a) Beijerinckia b) Rhodospirillum c) Rhizobium d) Azotobacter
15. A common bio-control agent for the control of plant diseases is_____
   a) Baculovirus b) Bacillus thuringiensis c) glomus d) Trichoderma
16. Which one of the following is not used in organic farming?
   a) Oscillatoria b) Snail c) Glomus d) Earthworm
17. Which of the following is not used as a biopesticide?
   a) Bacillus thuringiensis
   b) Trichoderma harzianum
   c) Nuclear polyhedrosis virus (NPV)
   d) Xanthomonas campestris
18. Cry-I endotoxins obtained from bacillus thuringiensis are effective against
   a) Mosquitoes b) Flies c) Nematodes d) Bollworms
19. Which one of the following is being utilized as a source of bio-diesel in the Indian countryside?
   a) Euphorbia b) Beet root c) Sugarcane d) Pongamia
20. During anaerobic digestion of organic waste, such as in producing biogas, which one of the following is left undegraded?
   a) Hemicellulose b) Cellulose c) Lipids d) Liginin
21. Which of the following is used as a third generation pesticide?
   a) Pathogens b) Pheromones
   c) Insect repellents d) Insect hormone analogues

22. What is agent organe?
    a) A biodegradable insecticide
    b) A weedicide containing dioxin
    c) Colour used in fluorescent lamp
    d) A hazardous chemical used in luminous paints
23. Which of the microorganism is used for production of citric acid in industries?
    a) Lactobacillus bulgaris b) Penicillium citrinum
    c) Aspergillus nigre d) Rhizopus nigricans
24. Which of the following is non-symbiotic bio-fertilizer?
    a) VAM b) Azotabacter c) Anabaena d) Rhizobium
25. Methanogens do not produce
    a)Oxygen b) Methane c) Hydrogen sulphide d) Carbon dioxide
26. The technology of biogas production from cow dung was developed in india largely due to the efforts of
    a) Gas authority of India
    b) Oil and Natural Gas Commission
    c) Indian Agricultural Research Institute and Khadi and Village Industries Commission
    d) Indian Oil Corporation
27. The vitamin whose content increases following the conversion of milk into curd by lactic acid bacteria is
    a) Vitamin C
    b) Vitamin D
    c) Vitamin B_{12}
    d) Vitamin E
28) Waste water treatment generates a large quantity of sludge, which can be treated by
    a) Digesters
    b) Activated sludge
    c) Chemicals
    d) Oxidation pond

XII-STANDADR - BIOLOGY

Biotechnology and its Application

1. Bt cotton is not
   a) A GM plant
   b) Insect resistant
   c) A bacterial gene expressing system
   d) Resistant to all pesticides

2. C-peptide of human insulin is
   a) A pat of mature insulin molecule
   b) Responsible for the formation of disulphide bridges.
   c) Removed during the maturation of pro-insulin to insulin
   d) Responsible for its biological activity.

3. GEAC stands for
   a) Genome Engineering Action Committee
   b) Ground Environment Action Committee
   c) Genetic Engineering Approval Committee
   d) Genetic and Environment Approval Committee

4. A-1 antitrypsin is
   a) An antacid
   b) An enzyme
   c) Used to treat arthritis
   d) Used to treat emphysema

5. A probe which is a molecule is used to locate specific sequences in a mixture of DNA or RNA molecules, it could be
   a) A single stranded RNA
   b) A single stranded DNA
   c) Either RNA or DNA
   d) Can be ssDNA but not ssRNA

6. Choose the correct option regarding Retrovirus:
   a) An RNA virus that can synthesize DNA during infection
   b) A DNA virus that can synthesize RNA during infection
   c) An ssDNA virus
   d) A dsRNA virus
7. The site of production of ADA in the body is
   a) Erythrocytes
   b) Lymphocytes
   c) Blood plasma
   d) Osteocytes

8. A protoxin is
   a) A primitive toxin
   b) A denatured toxin
   c) Toxin produced by protozoa
   d) Inactive toxin
9. Pathophysiology is the
   a) Study of physiology of pathogen
   b) Study of normal physiology of host
   c) Study of altered physiology of host
   d) None of the above
10. The trigger for activation of toxin bacillus thuringiensis is
   a) Acidic pH of stomach
   b) High temperature
   c) Alkaline pH of gut
   d) Mechanical action in the insect gut
11. Golden rice is
   a) A veriety of rice grown along the yellow river in china
   b) Long stored rice having yellow colour tint
   c) A transgenic rice having gene for b-catotene
   d) Wild variety of rice with yellow colourd grains
12. In RNAi, the genes are silenced using
   a) ssDNA
   b) dsDNA
   c) dsRNA
   d) ssRNA
13. The first clinical gene therapy was done for the treatment of
   a) AIDS
   b) Cancer
   c) Systic fibrosis
   d) SCID (Severe Combined Immunodeficiency resulting from the deficiency of ADA)
14. ADA is enzyme which is deficient in a genetic disorder SCID. What is the full form of ADA?
   a) adenosine deoxy aminase
   b) adenosine deaminase
   c) aspartate deaminase
   d) arginine deaminase
15. Silencing of a gene could be achieved through the use of
   a) RNAi only
   b) Antisense RNA only
   c) By both
   d) None of the above

XII-STANDARD - BIOLOGY

Organisms and populations

1. Autecology is the
    a) Relation of a population to its environment
    b) Relation of an individual to its environment
    c) Relation of a community to its environment
    d) Relation of a biome to its environment
2. Ecotone is
    a) A polluted area
    b) The bottom of a lake
    c) A zone of transition between two communities
    d) A zone of developing community
3. Biosphere is
    a) Component in the ecosystem
    b) Composed of the plants present in the soil
    c) Life in the outer space
    d) Composed of all living organisms present on earth which interacts with the physical environment
4. Ecological niche is
    a) The surface area of the ocean
    b) An ecologically adapted zone
    c) The physical position and functional role of a species within the community
    d) Formed of all plants and animals living at the bottom of a lake
5. According to Allen's Rule, the mammals from colder climates have
    a) Shorter ears and longer limbs
    b) Longer ears and shorter limbs
    c) Longer ears and longer limbs
    d) Shorter ears and shorter limbs
6. Salt concentration (Salinity) of the sea measures in parts per thousand is
    a) 10-15
    b) 30-70
    c) 0-5
    d) 30-35
7. Formation of tropical forests needs mean annual temperature and mean annual precipitation as
    a) 18-25^{0}C and 150-400 cm
    b) 5-15^{0}C and 50-100 cm
    c) 30-50^{0}C and 100-150 cm
    d) 5-15^{0}C and 100-200 cm
8. Which of the following forest plants controls the light conditions at the ground?
    a) Lianas and climbers
    b) Shrubs
    c) Tall trees
    d) Herbs

9. What will happen to a well growing herbaceous plant in the forest if it is transplanted outside the forest in a park?
   a) It will grow normally
   b) It will grow well because it is planted in the same locality
   c) It may not survive because of the change in its micro climate
   d) It grows very well because the plant gets more sunlight
10. If a population of 50 paramoecia present in a pool increases to 150 after an hour, then what would be the growth rate of that population?
   a) 50 per hour
   b) 200 per hour
   c) 5 per hour
   d) 100 per hour
11. What would be the percent growth or birth rate per individual per hour for the same population mentioned in the previous question (Question 10)?
   a) 100
   b) 200
   c) 50
   d) 150
12. A population has more young individuals compared to the older individuals. What would be the status of the population after some years?
   a) It will decline
   b) It will stabilize
   c) It will increase
   d) It will first decline and then stabilize
13. What parameters are used for the tiger census in our country's national parks and sanctuaries?
   a) Pug marks only
   b) Pug marks and fecal pellets
   c) Fecal pellets only
   d) Actual head counts
14. Which of the following would necessarily decrease the density of a population in a giver habitat?
   a) Natality and mortality
   b) Immigration and emigration
   c) Mortality and emigration
   d) Natality and immigration
15. A Protozoan reproduces by binary fission. What will the number of protozoans be in is population after six generations?
   a) 128
   b) 24
   c) 64
   d) 32

16. In 2005, for each of the 14 million people present in a country, 0.028 were born and 0.008 died during the year. Using the exponential equation, the number of people present in 2015 is predicted as
    a) 25 million
    b) 17 million
    c) 20 million
    d) 18 million
17. Comensalism is an association between two species where
    a) One species is harmed and other is benefitted
    b) One species is harmed and other is unaffected
    c) One species is benefitted and other is unaffected
    d) Both the species are harmed.
18. Lichens are the associations of
    a) Bacteria and fungus
    b) Algae and bacterium
    c) Fungus and algae
    d) Fungus and virus
19. Which of the following is partial root parasite?
    a) Sandal wood
    b) Mistletoe
    c) Orobanche
    d) Ganoderma

XII STANDARD – BIOLOGY

BIODIVERSITY

1. Which of the following countries has the highest biodiversity?
   a) Brazil
   b) South Africa
   c) Russia
   d) India
2. Which of the following is not a cause for the loss of biodiversity?
   a) Destruction of habitat
   b) Invasion by alien species
   c) Keeping animals in zoological parks
   d) Over-exploitation of natural resources
3. Which of the following is not an invasive alien species in the Indian context?
   a) Lantana
   b) Cynodon
   c) Parthenium
   d) *Eichhornia*
4. Where among the following will you find the pitcher plant?
   a) Rain forest of Northeast India
   b) Sunderbans
   c) Thar Desert
   d) Western Ghats
5. Which one of the following is not a characteristic feature of biodiversity of hotspots?
   a) Large number of species
   b) Abundance of endemic species
   c) Mostly located in the polar regions
   d) Mostly located in the tropics
6. Match the animals given in column A with their location in column B.

	Column A	Column B
i)	Dodo	A) Africa
ii)	Quagga	B) Russia
iii)	Thylacine	C) Mauritius
iv)	Steller's sea cow	D) Australia

   Choose the correct match from the following:
   a) i-A, ii-C, iii-B, iv-D
   b) i-D, ii-C, iii-A, iv-B
   c) i-C, ii-A, iii-B, iv-D
   d) i-C, ii-A, iii-D, iv-B
7. What is common to the following plants: Nepenthes, Psilotum, Rauwolfia and Aconitum?
   a) All are ornamental plants
   b) All are phylogenie link species
   c) All are prone to over exploitation
   d) All are exclusively present in the Eastern Himalayas.

8. The one-homed rhinoceros is specific to which of the following sanctuary
   a) Bhitar Kanika
   b) Bandipur
   c) Kaziranga
   d) Corbet
9. Amongst the animal groups below, which one has the highest percentage of endangered species?
   a) Insects
   b) Mammals
   c) Amphibians
   d) Reptiles
10. Which of the following is an endangered plant species of India?
   a) Rauvolfia serpentina
   b) Santalum album (Sandal wood)
   c) Cycas beddomei
   d) All of the above
11. What is common to lantana, Eichhornia and African catfish?
   a) All are endangered species of India
   b) All are key stone species.
   c) All are mammals found in India
   d) All the species are neither threatened nor indigenous species of India
12. The extinction of passenger pigeon was due to
   a) Increased number of predatory birds
   b) Over exploitation by humans
   c) Non-availability of the food
   d) Bird flu virus infection
13. Which of the following statements is correct?
   a) Parthenium is an endemic species of our country.
   b) African catfish is not a threat to indigenous catfishes
   c) Steller's sea cow is an extinct animal
   d) Lantana is popularly known as carrot grass.
14. Among the ecosystem mentioned below, where can one find maximum biodiversity?
   a) Mangroves
   b) Desert
   c) Coral reefs
   d) Alpine meadows
15. Which of the following forests is known as the 'lungs of the planet Earth'?
   a) Tiga forest
   b) Tundra forest
   c) Amazon rain forest
   d) Rain forest of Northeast India

16. The active chemical drug reserpine is obtained from
    a) Datura
    b) Rauvolfia
    c) Atropa
    d) Papaver
17. Which of the following group exhibit more species diversity?
    a) Gymnosperms
    b) Algae
    c) Bryophytes
    d) Fungi
18. Which of the below mentioned regions exhibit less seasonal variations?
    a) Tropics
    b) Temperate
    c) Alpines
    d) Both (a) and (b)
19. The historic convention on Biological Diversity held in Rio de Janeiro in 1992 is known as
    a) CITES convention
    b) The Earth Summit
    c) G-16 Summit
    d) MAB Programme
20. What is common to the techniques (i) in vitro fertilization, (ii) Cryo preservation and (iii) tissue culture?
    a) All are in situ conservation methods.
    b) All are ex situ conservation methods.
    c) All require ultra-modern equipment and large space

d) All are methods of conservation of extinct organisms

XII STANDARD – BIOLOGY

Environmental Issues

1. According to the Central Pollution Control Board, particles that are responsible for causing great harm to human health are of diameter
   a) 2.50 micrometre
   b) 5.00 micrometre
   c) 10.00 micrometre
   d) 7.5 micrometre
2. The material generally used for sound proofing of rooms like a recording studio and auditorium, etc., is
   a) Cotton
   b) Coir
   c) Wood
   d) Styrofoam
3. Compressed Natural Gas (CNG) is
   a) Propane
   b) Methane
   c) Ethane
   d) Butane
4. The world's most problematic aquatic weed is
   a) Azalea
   b) Wolffia
   c) Eichhornia
   d) Trapa
5. Which of the following causes biomagnifications?
   a) SO_2
   b) Mercury
   c) DDT
   d) Both (b) and (c)
6. The expanded form of DDT is
   a) Dichloro diphenyl trichloroethane
   b) Dichloro diethyl trichloroethane
   c) Dichlorodiphenyltrichloroethane
   d) Dichloro diphenyl tetrachloroaccetate
7. Which of the following material takes the longest time for biodegradation?
   a) Cotton
   b) Paper
   c) Bone
   d) Jute
8. Choose the incorrect statement
   a) The Montreal protocol is associated with the control of emission of ozone depleting substances.
   b) Methane and carbon dioxide are greenhouse gases.
   c) Dobson units are used to measure oxygen content.
   d) Use of incinerators is crucial to the disposal of hospital wastes.

9. Among the following which one causes more indoor chemical pollution?
   a) Burning coal
   b) Burning cooking gas
   c) Burning mosquito coil
   d) Room spray
10. The green scum seen in the fresh water bodies is
   a) Blue green algae
   b) Red algae
   c) Green algae
   d) Both (a) and (c)
11. The loudness of a sound that a person can withstand without discomfort is about
   a) 150 dB
   b) 215 dB
   c) 30 dB
   d) 80 dB
12. The major source of noise pollution, worldwide is due to
   a) Office, equipment
   b) Transport system
   c) Sugar, textile and paper industries
   d) Oil refineries and thermal power plants
13. Match correctly the following and choose the correct option:

i.	Environment Protection Act	A. 1974
ii.	Air Prevention and Control of Pollution Act	B. 1987
iii.	Water Act	C. 1986
iv.	Amendment of Air Act to include noise	D. 1981

   The correct matches is
   a) i-C, ii-D, iii-A, iv-B
   b) i-A, ii-C, iii-B, iv-D
   c) i-D, ii-A, iii-B, iv-C
   d) i-C, ii-D, iii-B, iv-A
14. Catalytic converters are fitted into automobiles to reduce the emission of harmful gases. Catalytic converters change unburnt hydrocarbons into
   a) Carbon dioxide and water
   b) Carbon monoxide
   c) Methane
   d) Carbon dioxide and methane
15. Why is it necessary to remove sulphur from petroleum products?
   a) To reduce the emission of sulphur dioxide in exhaust fumes.
   b) To increase the efficiency of automobiles engine.
   c) To use sulphur removed from petroleum for commercial purposes.
   d) To increase the life span of engine silencers.

16. Which one of the following impurities is the easiest to remove from wastewater?
    a) Bacteria
    b) Colloids
    c) Dissolved solids
    d) Suspended solids
17. Nuisance growth of aquatic plants and bloom – forming algae in natural waters is generally due to the high concentrations of
    a) Carbon
    b) Sulphur
    c) Calcium
    d) Phosphorus
18. Algal blooms impart a distinct colour to water due to
    a) Their pigments
    b) Excretion of coloured substance
    c) Formation of coloured chemicals in water facilitated by physiological degradation of algae
    d) Absorption of light by algal cell wall.
19. Match the items in column-I and column-II and choose the correct option:

Column-I	Column-II
A. UV	i. Biomagnification
B. Biodegradable organic matter	ii. Eutrophication
C. DDT	iii. Snow blindness
D. Phosphates	iv. BOD

    The correct match is:

    a) A-ii, B-i, C-iv, D-iii
    b) A-iii, B-ii, C-iv, D-i
    c) A-iii, B-iv, C-i, D-ii
    d) A-iii, B-i, C-iv, D-i
20. Bhopal gas tragedy is associated with
    a) CO_2
    b) Methyl isocyanate
    c) CFC's
    d) Methyl cyanate

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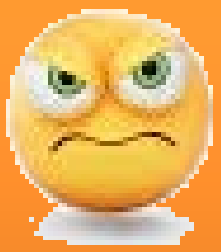

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